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Reply to Office action of January 3, 2005

IN THE CLAIMS

Applicant declines to amend the claims at this time. For the Examiner's convenience, the currently pending set of claims is reproduced below.

1.   (Original) A method of thermal management in a voltage source inverter, the method comprising:

sensing a low output frequency condition;

determining a zero vector modulation responsive to the sensed low output frequency condition; and

applying the determined zero vector modulation to reduce thermal stress in the voltage source inverter.

2.   (Original) The method of claim 1, wherein determining the zero vector modulation responsive to the sensed low output frequency condition comprises:

mapping an output voltage requirement to a space vector structure; and

determining state switching space vectors based on the mapped output voltage requirement.

3.   (Original) The method of claim 2, wherein the magnitude of a combination of state switching space vectors is equal to the magnitude of the output voltage requirement.

4.   (Original) The method of claim 2, wherein determining the state switching space vectors comprise:

determining active state switching space vectors associated with the state switching space vectors;

determining duty cycles for the active state switching space vectors based on the active state switching space vectors and the mapped output voltage requirement; and

determining a duty cycle for at least one zero state switching space vector based on the determined duty cycles of the active state switching space vectors and a switching period.

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5. (Original) The method of claim 4, wherein the duty cycle for the at least one zero state switching space vectors is selected from the group consisting of: a first zero state duty cycle, a second zero state duty cycle, and a combination of the zero state duty cycles.

6. (Original) The method of claim 1, wherein applying the determined zero vector modulation to reduce thermal stress in the voltage source inverter comprises:

applying a net voltage from the inverter to a load when active state switching space vectors are utilized; and

applying a shorted voltage from the inverter to the load when zero state switching space vectors are utilized.

7-12. (Withdrawn)

13. (Original) A system for thermal management in a voltage source inverter, the system comprising:

means for sensing a low output frequency condition;

means for determining a zero vector modulation responsive to the sensed low output frequency condition; and

means for applying the determined zero vector modulation to reduce thermal stress in the voltage source inverter.

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